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Title: INECP Case Studies

Author(s): Beedle, Christopher Craig

Intended for: Case studies for INECP Training pruposes

Issued: 2021-10-27

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INECP Case Studies

The following “INECP Case Studies” document contains two case studies: Corrosion-Resistant Valves and Case Study: Dual-Use Items for Gas Centrifuge. The content of both of these case studies was approved for unlimited release in 2013. The case studies have been reorganized or slightly altered to make them more easily presentable during virtual or in-person International Nonproliferation Export Control Program (INECP) programmatic trainings and engagements. The document also contains the original case studies with LA-UR release numbers. The original studies were included in the document as a reference for derivative classification and export control.

INECP Case Studies

Christopher Beedle

NEN-3

Los Alamos National Laboratory

Intended for: Programmatic

Corrosion-Resistant Valves

Who: Shahab Ghasri of Petroinstrument HB

What: Ghasri attempted declared shipment of 18 valves and other dual-use commodities to UAE, to be shipped onto Iran

Commodities: corrosion resistant and bellows-sealed valves



***PFA-lined
Control Valve***

Corrosion-Resistant Valves

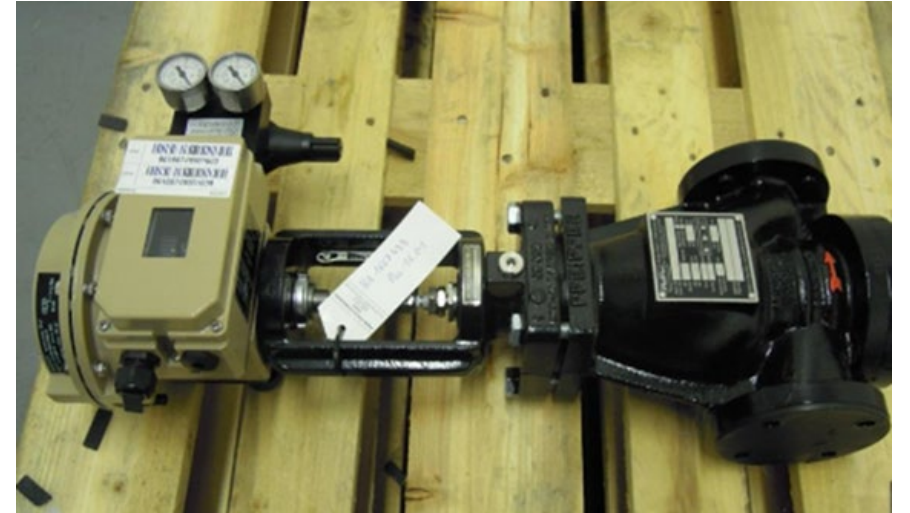
Ghasri tried to purchase 10 vacuum pumps from a German company in 2010

- German authorities alerted Swedish Customs
- Swedish Customs created a targeting profile on Swedish citizen Shahab Ghasri and his company

Ghasri attempted declared shipment of 18 valves and other dual-use commodities to UAE

- Procured from German and Swedish sources
- 2 of the 18 valves were controlled, the rest were assessed as a catch-all risk
- Deemed excessive for civilian use

Shipment targeted for inspection; investigation indicated goods going to Iran



Corrosion-Resistant Valves

Proliferation Tactics

Attempted to acquire commodities just below control specifications

Created a false export declaration

Created false end-user certificate for an end user in UAE

- Shipping label showed destination as THR (Tehran)
- Claimed ignorance stating buyer asked him to do so



Corrosion-Resistant Valves

Result

Prosecution proved Ghasri knowingly and willfully tried to circumvent laws on export of dual-use goods.

He received a suspended sentence of 3 months in prison and a fine of 300 euros



***Swedish Customs
Administration***

SPACE SLIDE- WILL DELETE UPON COMPLETION OF THE
QC REVIEW

Case Study: Dual-Use Items for Gas Centrifuge

Who: Parviz Khaki, citizen of Iran living in Philippines, and Zongcheng Yi, resident of China

What: Attempted to obtain and illegally export to Iran numerous U.S.-origin materials for gas centrifuge

- Maraging steel (20 tons, C-350),
- Aluminum alloys (20 tons, 7075-T6),
- Mass spectrometers,
- Vacuum pumps, and other items

Commodity:

- Maraging Steel is a special class of high-strength steel.
- High strength aluminum alloys with high resistance to corrosion are useful in production of parts for a gas centrifuge, including centrifuge rotor tubes and end caps



Zongcheng Yi-At Large

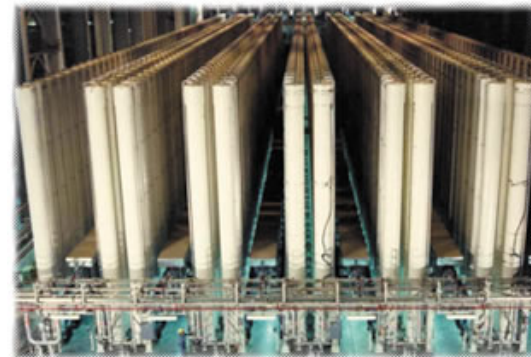
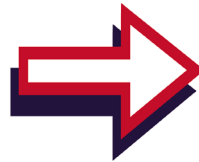
Case Study: Dual-Use Items for Gas Centrifuge

Scheme

Yi used his company Monalila, a Chinese toy and trading company

Khaki directed Yi and others to contact U.S. companies, purchase goods, and have the goods exported from the U.S. through China and Hong Kong to Khaki and others in Iran

Yi and others made a variety of false statements on behalf of Khaki in order to convince U.S. companies to export these items to a third country



Case Study: Dual-Use Items for Gas Centrifuge

Proliferation Tactics

Use of aliases and front companies

- Yi used the “Monalila Toy Company”, located in China, as a front company.

False end use / end-user declarations

- Yi Described the end-use for maraging steel was for a playground toy
- Alleged emails from Khaki to Yi indicate that the steel was destined for a company in Iran.

Undervalued items on customs declarations

Transshipment

- Aluminum was shipped to Hong Kong; payment was arranged from China.

Case Study: Dual-Use Items for Gas Centrifuge

Result

In February of 2009, HSI initiated an undercover investigation of Parviz Khaki.

- The request for 20 tons of maraging steel was a tip off to authorities
- Indictment led to Khaki's arrest in the Philippines

Khaki and Yi were indicted on the following counts for violating these laws & regulations:

- Count 1: 50 USC 1705 – International Emergency Economic Powers Act
- Count 2: 18 USC 371 – Conspiracy to Defraud the US Government
- Counts 3 & 4: - 18 USC 554 – Smuggling
- Counts 5 & 6: 50 USC 1705 – Illegal Exports of U.S. Goods to Iran
- Count 7: 18 USC 1956 Conspiracy to Commit Money Laundering

Both Khaki and Yi faced greater than 100 years max prison terms & a significant fine

LA-UR-13-23194

Approved for public release; distribution is unlimited.

Title: Case Study: End User-Iran Gas Centrifuge Technology

Author(s): Streeper, Charles
Weiss, Loretta A.
Thomsen, Davis R.

Intended for: Programmatic

Issued: 2013-05-02



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Title: Case Study: End User-Iran Gas Centrifuge Technology

- **Authors: Charles Streeper, Loretta Weiss, Davis Thomsen**



International Nonproliferation Export Control Program (INECP)

Case Study: End User-Iran Gas Centrifuge Technology



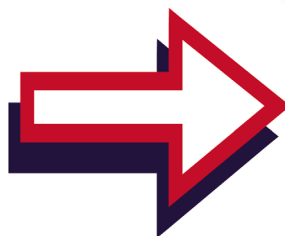
Gas Centrifuge Technology to Iran-2008-2011

Summary:

- Parviz Khaki (Iran) enlisted support of front companies/suppliers (Zongcheng Yi) in attempt to obtain dual-use gas centrifuge supplies
- Transshipment via US-China/Hong Kong/Philippines/Sweden
- Shipment violated Iran Trade Embargo
- Undercover investigator directly involved in discussions with Parviz a year after first attempt of procurement of Maraging Steel
- Some supplies still made it to Iran (Lathes/Nickel Alloy)



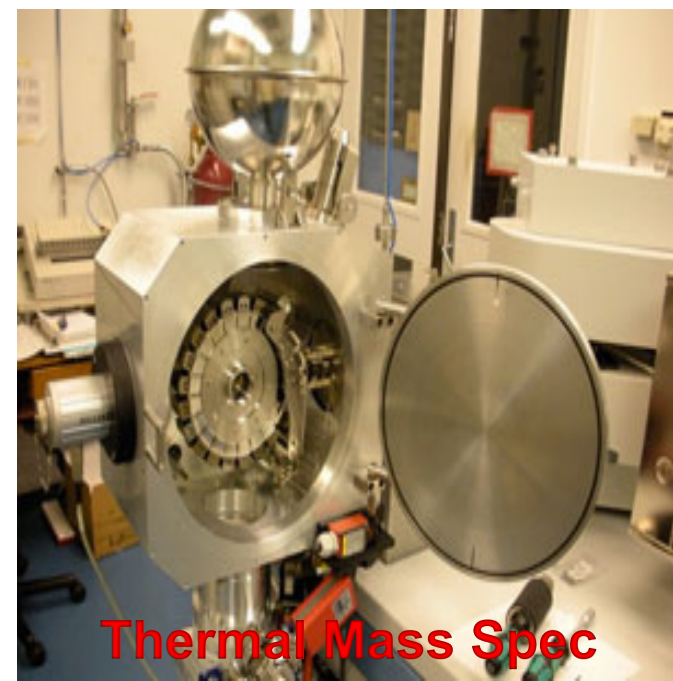
**Front Company:
Monalila Toy Co. LTD**





Material Details

- **Maraging steel** 20 Tons (C-350)
- **Aluminum alloys** 40 Tons (7075-T6 (150mm & 7075-O (80mm) rods)*
- **Magnetic tape** Arnokrome 3*
- **Vacuum pumps, accessories, valves, & gauges***
- **DSP gauss meter***
- **Mass spectrometers** (magnetic/thermal ionization)
- **Nitrogen/hydrogen/oxygen analyzer**
- **Pressure transducers** (MKS Baratron)
- **Lathes** (Twister Speed)—June 2009 Iran
- **Nickel alloy 120 wire**—June 2009-Iran
- **Radioactive sources** (^{133}Ba , ^{131}I , ^{152}Eu , ^{109}Cd , & ^{57}Co)



*Khaki & Yi using foreign companies to contact US manufacturers



Red Flags

1. **Loopholes**-Exploited industry/government weaker enforcement of transshipment regulations
 - *Relied upon vendors that didn't investigate the legitimacy of the buyer/end-user*
2. **Methods**-Utilized aliases, false end-user documents, & front companies/middle men
3. **Manipulation**-Attempted to convince companies no license required for re-export of items to third country
 - *Use of political/business contacts to avoid export requirements*
 - *Attempted tax avoidance through reducing customs declaration values*
4. **Multipronged Approach**-Made broad attempts at procurement of the same items through multiple contacts/countries
 - *Requested sample with potential order of much larger quantities – i.e. 20 tons maraging steel and 40 tons aluminum alloys*
 - *Made material requests of higher quality/reliability than may be expected of typical end-user*
 - *Impatience in obtaining procurements by sending same requests to different suppliers within a month timeframe*

“Cooperation between governments and industry is critical to countering nuclear smuggling efforts by countries such as Iran” David Albright Institute for Science and International Security



Outcome

- Continued East-Asia nexus for Iranian procurement efforts from countries with developed nuclear programs
 - *2012 Qiang Hu (Thousands of MKS pressure transducers) and 2007 Gromacki (Carbon Fiber)*
- Items that didn't make it to Iran were either blocked by investigator, by companies involved or by the Department of Commerce
- Global cooperation required for capturing and prosecuting cases
- 2012 US Grand Jury indicted Khaki and Yi with 8 charges->100 years max prison terms & significant fine



Khaki-Arrested in Philippines



Zongcheng Yi-At Large



Co-conspirators-Unknown

Counterproliferation sting operations work!

LA-UR-13-25542

Approved for public release; distribution is unlimited.

Title: Global Proliferation: Case Studies of Procurement Attempts

Author(s): Hsieh Ratliff, Gillian T.

Intended for: Programmatic

Issued: 2013-07-19



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Global Proliferation: Case Studies of Procurement Attempts

- **Author: Gillian Hsieh Ratliff**

Gillian Hsieh Ratliff
Pitzer College
NEN-3
Davis Thomsen

Global Proliferation: Case Studies of Procurement Attempts

Aspiring proliferant state and non-state actors' development of weapons of mass destruction (WMD) is a problem the broad majority of nations collectively seek to inhibit. Commercially sold commodities with legitimate civilian uses or even conventional military use can also be of use in the development of WMD. These commodities are protected by adherence to international agreements in the form of implementation of legislation. Illicit procurement networks arise out of the resultant need to circumvent the provisions of this legislation such as End User and End Use verification both on the part of the law enforcement community and the commercial vendors themselves.

In this presentation I will give a brief overview of the proliferation of sensitive goods and present several recent and representative case studies of illicit procurement attempts. These cases illustrate examples of desired commodities, methods of circumventing regulations and commercial best practices, red flags for both law enforcement and commercial enterprise that indicate suspicious transactions, and potential consequences of participation in these networks. Finally, I will present a broader context of my program's role in the prevention and detection of these attempts and its place in the global nonproliferation community.



International Nonproliferation Export Control Program (INECP)

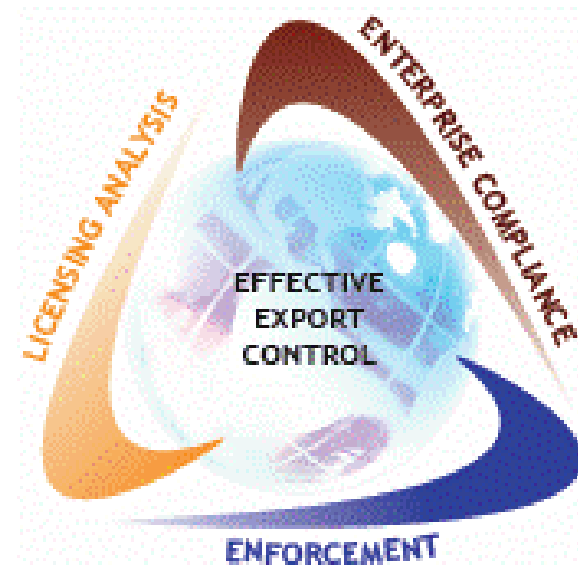
Global Proliferation: Case Studies of Procurement Attempts

Gillian Hsieh Ratliff NEN-3



Preventing Proliferation

- **International Threat Reduction (NEN-3)**
 - Some programs: Second Line of Defense, Off-Site Source Recovery, Global Initiatives for Proliferation Prevention (GIPP), MPC&A
 - My program: **International Nonproliferation Export Control Program (INECP)**
 - *INECP Mission*
 - Strengthen global efforts to prevent proliferation of Weapons of Mass Destruction (WMD) - related materials, equipment, and technology
 - *Threat*
 - Networks of agents, brokers, and front companies systematically procure the commodities and technology needed for WMD development and production facilities
 - When stopped, examples of these networks can provide valuable lessons for enforcement, enterprise, and licensing agencies



INECP Main objective: strengthen implementation of strategic trade controls



Preventing Proliferation

- **What I did and how my work helped further INECP goals**
 - Developed case studies on proliferation attempts
 - *Designed to demonstrate the practical relevance of the topics we discuss with partner country audiences*
- **Break down of Case Studies**
 - Answered the basic questions of some proliferation cases
 - *Who, What, Where, Why, When, and How*

Case Study: Valves

Corrosion-Resistant Valves – Sweden

Case Summary

- Shabab Ghasri, a 31-year-old Swede of Iranian origin attempted diversion of non-corrosive valves to Iran in circumvention of international sanctions
- The attempt was discovered in 2011 when the Swedish Customs Authority carried out a targeted inspection of an air shipment flagged by the customs system
 - The inspection discovered that the package was officially destined for Dubai per customs documentation; however, inspection, the labels on the boxes specified Tehran as destination
- Among a total of 18 valves, two were high-tech non-corrosive valves that met control parameters
 - These valves are included on the EU's list of dual-use items that can be used in the oil and gas industry, chemical processing, and for uranium enrichment
- Swedish customs inspectors found the knowledge gained through Commodity Identification Training (CIT) extremely useful in this investigation



Case Study: Machine Tools

Machine Tools – United States

Case Summary

- **Taiwanese father and son Alex and Gary Tsai, respectively, arrested under export law**
 - Both have had a long history of proliferate behavior
 - Alex Tsai is a major procurement agent for North Korea's Korea Mining & Development Corporation (KOMID)
 - Gary was a legal permanent resident of the United States
- **Alex and Gary Tsai used an apparently proliferate parent company in order to procure controlled commodities**
 - Trans Merits Co. Ltd. (proliferate parent company), Global Interface Mechanics Co. Ltd., and Factor Direct Machine Tools (front company)
- **Alex Tsai created a company in Taiwan called Trans Multi Mechanics**
 - Used interchangeably with Trans Merits in an attempt to confuse
- **Gary Tsai created an import/export company called Factory Direct**
 - The indictment states that Factory Direct was used by Gary Tsai to purchase on behalf of parent company Trans Merits
- **Alex Tsai was sanctioned by Office of Foreign Assets Control (OFAC)**

Owner of Co.	Parent Company	Front Company
Alex Tsai	Trans Merits	Trans Multi Mechanics
Gary Tsai	----	Factor Direct

Case Study: Nozzle & Amplifiers

Nozzle Coating & Microwave Amplifiers – Taiwan

Case Summary

- **U.S. citizen Mark Henry, 49, charged with illegal export of sensitive military and dual-use materials**
 - Aliases: Weida Zheng, Scott Russel, Bob Wilson, Joanna Zhong
- **From April 2009 through September 2012 Henry**
 - Operated two export corporations, Dahua Electronics Corporation and Bao An Corporation
 - Both registered to residential addresses in New York
 - Shipped goods from suppliers in the U.S. to Asia
 - Specifically focused on China and Taiwan.
- **Henry ordered two amplifiers from a Pennsylvania company**
 - He told the company that the two amplifiers would be sent to a New York education company
 - He actually tried to export them to China without the required license
- **Henry ordered military-grade material that can be used as a protective coating for rocket nozzles**
 - He exported this material to Taiwan without the required export license
- **Henry was arrested in December 2012 at his New York home**



Solid State Microwave Amplifiers



Rocket Nozzle



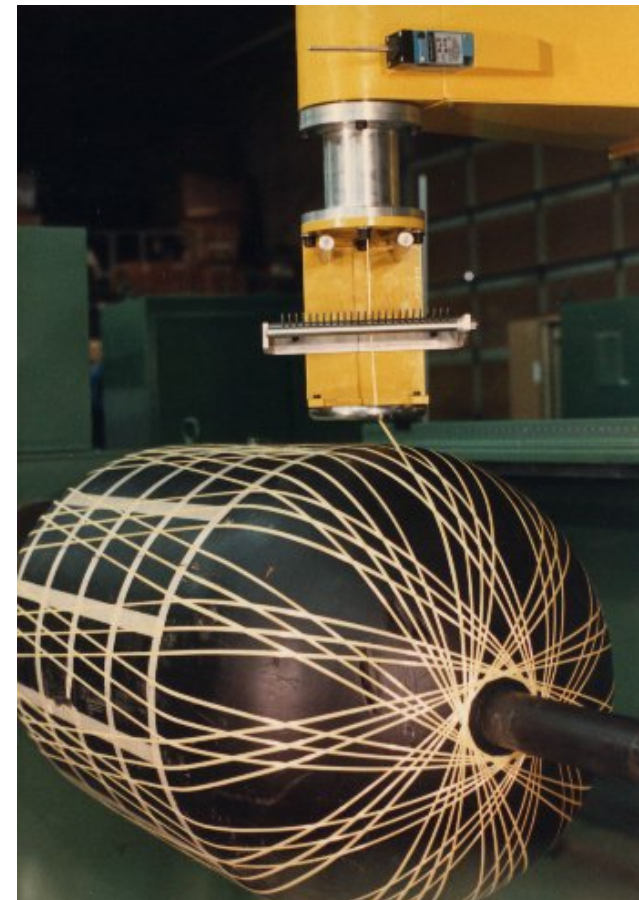
Dual Use Commodities and Control Lists

- **Dual use commodities**

- Products and technologies normally used for civilian purposes but which may have military/WMD applications
- Control of dual use commodities is a critical part of global nonproliferation

- **Multilateral regimes**

- The multilateral export control arrangements are groups of supplier countries which seek to prevent the proliferation of WMD and their means of delivery through the national implementation of Guidelines and control lists for exports
- Nations incorporate these guidelines and control lists into their own national controls
- The following case studies reference control numbers for multilateral regimes and national export control legislation



Filament Winding Machine

Corrosion-Resistant Valves – Sweden

Case Summary

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- The attempt was discovered in 2011 when the Swedish Customs Authority carried out a targeted inspection of an air shipment flagged by the customs system
 - The inspection discovered that the package was officially destined for Dubai per customs documentation; however, upon inspection, the labels on the boxes specified Tehran as the final destination
- Among a total of 18 valves, two were high-tech non-corrosive valves that met control parameters
 - These valves are included on the EU's list of dual-use items as they can be used in the oil and gas industry, chemical processing, and for uranium enrichment
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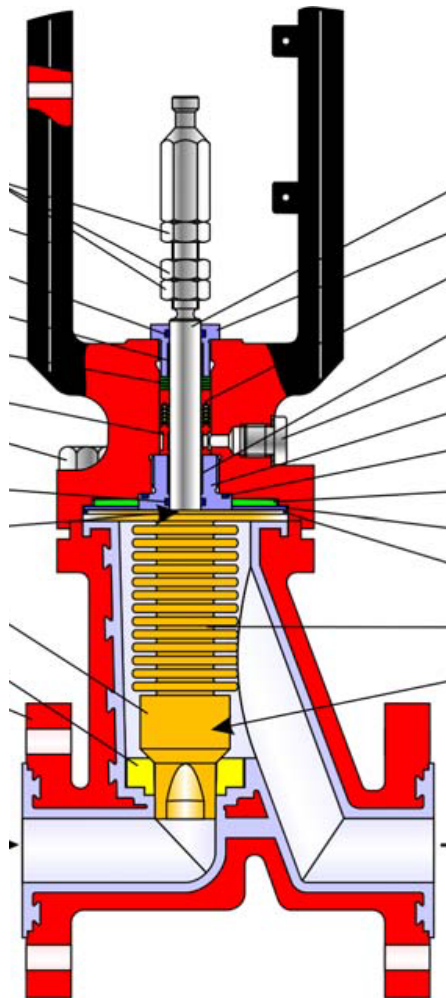


*PFA-lined
Control Valve*



*Series 1b Globe Valve
with Samson actuator*

Valve concerns and controls



Sectional diagram of
Series 1b Globe Valve

- **Concerns**

- These specific valves are of particular concern that they would be used in the Iranian nuclear program
- PFA-lined globe valves for corrosive media are especially suitable for highly corrosive environments such as those in chemical plants and are generally controlled for chemical reasons (for the exception, see below)

- **Relevant control parameters**

- (EU 0B001.c.6 and 0B001.d.6): Lining made of special compounds, e.g. conductive perfluoroalkoxy (PFA)
 - *PFA is a type of fluoropolymer*
Note: Fluoropolymers are polymeric or elastomeric materials with more than 35 % fluorine by weight
- (EU 2B350.g): Valves with 'nominal sizes' greater than 10 mm and casings (valve bodies)
 - *Size of PFA-lined globe valve: 1"-4"*
 - With this size these would be used on headers and large pipe systems

PFA-lined globe valves are suitable for UF₆ environment; however, this type of valve is not the most preferred type

Case Study: Valves

Red Flags and Conclusion

- **Red Flags**

- Discontinuity between stated destination and, according to the evidence, intended shipment destination
- No export permits had been sought for the shipment
 - *Only two of the 18 valves met control specifications*

- **Conclusion**

- This is the first successful Swedish prosecution/sentencing regarding dual use export control violations
- According to Swedish nonproliferation expert Daniel Nord:
 - *The equipment in this case could be used in the oil and gas industry and other sectors but that "the properties of the materials are so advanced that it would be overkill to use them" for such purposes, especially because of their cost*
- Ghasri was charged with violating export control laws in this attempt. He was sentenced to 3 months in prison



Swedish Customs Administration



Examples of servo valves



Case Study: Machine Tools

Machine Tools – United States

Case Summary

- **Taiwanese father and son Alex and Gary Tsai, respectively, arrested for circumventing US export law**
 - Both have had a long history of proliferate behavior
 - Alex Tsai is a major procurement agent for North Korea's Korea Mining Development Trading Corporation (KOMID)
 - Gary was a legal permanent resident of the United States
- **Alex and Gary Tsai used an apparently proliferate parent company and a series of front companies in order to procure controlled commodities**
 - **Trans Merits Co. Ltd.** (proliferate parent company), **Global Interface Company Inc.**, **Trans Multi Mechanics Co. Ltd.**, and **Factor Direct Machine Tools** (front companies)
- **Alex Tsai created a company in Taiwan called Trans Multi Mechanics Co**
 - Used interchangeably with **Trans Merits** in an attempt to confuse enforcement
- **Gary Tsai created an import/export company called Factory Direct Machine Tools**
 - The indictment states that **Factory Direct** was used by Gary Tsai to negotiate machinery purchases on behalf of parent company **Trans Merits**
- **Alex Tsai was sanctioned by Office of Foreign Assets Control (OFAC); Gary was designated by OFAC**

Owner of Co.	Parent Company	Front Company
Alex Tsai	Trans Merits	Trans Multi Mechanics and Global Interface
Gary Tsai	----	Factor Direct Machine Tools

Case Study: Machine Tools

Timeline of the Case

Sansei
SS-501
rotary
surface
grinder



- Alex Tsai is a major procurement agent for North Korea's KOMID

June:

- Alex company **Trans Merit** was indicted in Taiwan

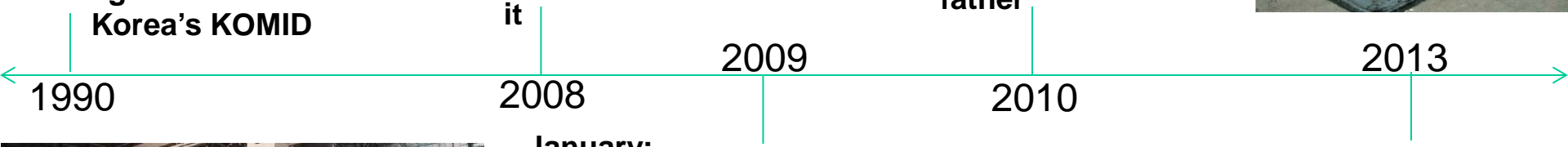
August-September:

- Gary ordered a rotary Grinder.
- From Los Angeles to Taiwan. **Trans Multi** paid for it but **Trans Merit** got it

Bryant Center
Hole Grinder



- Gary continued to import commodities and discussed laundering money to his father



Mitsui Seki Model HT4A
Machining Center

January:

- Alex Tsai and his companies (**Trans Merits Ltd.** and **Global Interface Company, Inc.**) were sanctioned by OFAC
- Gary designated by OFAC

March:

- KOMID sanctioned

August:

- Alex created **Trans Multi** in Taiwan

September:

- Gary created **Factory Machine Tools** as a front company

May 6th:

- Indictment and arrest of Alex Tsai and Gary Tsai

Parent Company
Front Company

Case Study: Machine Tools

Red Flags and Conclusion

Red Flags

- Alex and his company (**Trans Merits Co.**) were indicted in Taiwan June 2008
- Sanctions against Alex in 2009
- Alex allegedly worked with KOMID
- Alex Tsai created a company in Taiwan called **Trans Multi Mechanics Co**
 - Tsai used it interchangeably with **Trans Merits**
- **Factory Direct** was used by Gary Tsai to negotiate machinery purchases export on behalf of parent company **Trans Merits**.
- Flow of money
 - Alex Tsai's company **Trans Merit Co** would give money to **Factory Direct** and **Trans Multi** to pay for export control machine tools.

Conclusion

- Gary Tsai, 36, was ordered held in custody pending a detention hearing
- Alex Tsai, 67, remains in custody in Estonia pending proceedings to extradite him to the United States.

Parent Company
Front Company



Mitsui Seki Model HT4A Machining Center



Sansei SS-501 rotary surface grinder

This case is ongoing; more information will be available as the case progresses through the US legal system

Case Study: Nozzle & Amplifiers

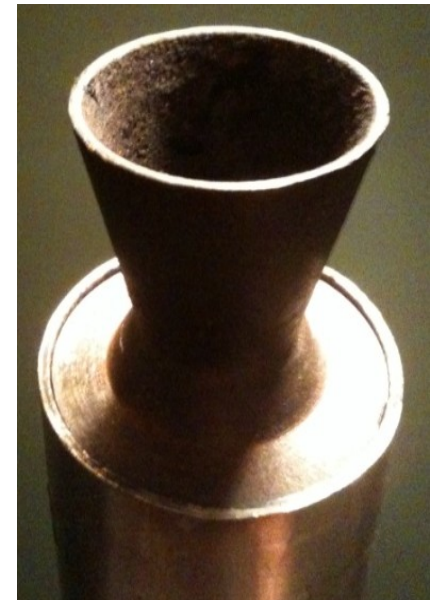
Nozzle Coating & Microwave Amplifiers – Taiwan

Case Summary

- **U.S. citizen Mark Henry, 49, charged with illegal export of sensitive military and dual-use materials**
 - Aliases: Weida Zheng, Scott Russel, Bob Wilson, Joanna Zhong
- **From April 2009 through September 2012 Henry**
 - Operated two export corporations, Dahua Electronics Corporation and Bao An Corporation
 - *Both registered to residential addresses in New York*
 - Shipped goods from suppliers in the U.S. to Asia
 - *Specifically focused on China and Taiwan.*
- **Henry ordered two amplifiers from a Pennsylvania company**
 - He told the company that the two amplifiers would be sent to a New York education company
 - He actually tried to export them to China without the required license
- **Henry ordered military-grade material that can be used as a protective coating for rocket nozzles**
 - He exported this material to Taiwan without the required export license
- **Henry was arrested in December 2012 at his New York home**



Solid State Microwave Amplifiers



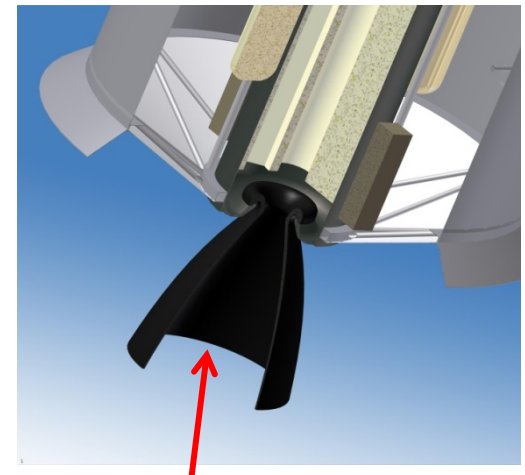
Rocket Nozzle

Case Study: Nozzle & Amplifiers Controls

- **Likely* relevant controls**
 - **Microwave Amplifiers:**
 - (EU 3A001.b.4 or 3A001.b.8): “Microwave solid state amplifiers” or “Microwave power amplifiers containing tubes”
 - It is unclear from the indictment the exact make/model of the amplifiers
 - **Rocket Nozzle Coatings:**
 - (Wassenaar 9.A.10.) “Specially designed components, systems and structures, for launch vehicles, launch vehicle propulsion systems or ‘spacecraft’”



Microwave Amplifiers



Rocket Nozzle

Both commodities are used in missiles

- *Nozzle Coatings:*
 - Exclusive Military Use
- *Microwave Amplifiers:*
 - Dual Use

***The actual commodities or controls are not listed in the indictment**

Case Study Nozzle & Amplifiers

Red Flags and Conclusion

- **Red Flags**

- Use of aliases: including Weida Zheng, Scott Russell, and Johanna Zhong From 2009-2012
- Use of Front Companies: Henry ran two exporting businesses, Dahua Electronics and Bao An Corp., both registered to residential addresses in New York, and used those companies to facilitate the shipping of the materials
- False end user: He told the electronics supplier company that the two amplifiers would be sent to a New York education company

- **Conclusion**

- If convicted, Henry faces a maximum sentence of 45 years prison



Microwave Amplifiers



*Carbon Integral Nozzle
Throat and Exit Cone*

This case is ongoing; more information will be available as the case progresses through the US legal system



Conclusion

- **INECP Main objective:**
 - Strengthen implementation of strategic trade controls
- **This framework has evolved over many years in response to diverse proliferation threats**
 - With each “layer” or initiative, the framework sought to adapt to new challenges presented by advances in technology, emerging threats, and other global events
- **Case studies on proliferation attempts**
 - Designed to demonstrate the practical relevance of the topics we discuss with partner country audiences